

What is claimed

1. A method of refining a surface of a printed circuit board, the method comprising:
 - (a) providing a brush comprising:
 - (i) a plurality of bristles integrally molded with a central portion of the brush, the bristles comprising thermoplastic polymer, polysiloxane lubricant, and silicon carbide abrasive particles, the thermoplastic polymer having a Shore D hardness of 55-90;
 - (ii) the plurality of bristles having a length of 0.0625 inch to 1.5 inch;
 - (b) contacting the brush with the surface of a printed circuit board comprising a copper surface and having apertures therethrough;
 - (c) refining the surface to provide a copper surface having an acceptable surface finish and to provide acceptable apertures.
2. The method according to claim 1, wherein the step of providing a brush comprises:
 - (a) providing a brush comprising a plurality of bristles having a length of 0.25 inch to 0.5 inch.
3. The method according to claim 1, wherein the step of providing a brush comprises:
 - (a) providing a brush having bristles comprising a thermoplastic polymer having a Shore D hardness of 70-85.
4. The method according to claim 1, wherein the step of providing a brush comprises:
 - (a) providing a brush having bristles comprising 2-20 wt-% polysiloxane lubricant.
5. The method according to claim 4, wherein the step of providing a brush comprises:
 - (a) providing a brush having bristles comprising 5-15 wt-% polysiloxane lubricant.
6. The method according to claim 1, wherein the step of providing a brush comprises:

- (a) providing a brush having bristles comprising 20-45 wt-% silicon carbide particles.
- 7. The method according to claim 1, wherein the step of providing a brush comprises:
 - (a) providing a brush having bristles with a cross-section 0.01 to 0.05 inch wide and 0.01 to 0.05 inch high.
- 8. The method according to claim 7, wherein the step of providing a brush comprises:
 - (a) providing a brush having bristles with a cross-section 0.025 inch wide and 0.025 inch high.
- 9. The method according to claim 1, wherein the step of providing a brush comprises:
 - (a) providing a brush having trapezoidal bristles.
- 10. The method according to claim 1, wherein the step of refining the surface comprises:
 - (a) refining the surface to provide a surface finish of 0.05 to 0.3 micrometer Ra.
- 11. The method according to claim 10, wherein the step of refining the surface comprises:
 - (a) refining the surface to provide a surface finish of 0.1 to 0.2 micrometer Ra.
- 12. The method according to claim 1, wherein the step of refining the surface comprises:
 - (a) refining the surface to provide unplugged apertures.
- 13. The method according to claim 1, wherein the step of contacting the brush with the surface of a printed circuit board comprises:
 - (a) contacting the brush with the surface of the printed circuit board to create a footprint that is 1.25% to 2.75% of a circumference of the brush with a 150 mm wide contact width.